

Serial Number: 09/847, 0813

- ☐ Changed a file from non-ASCII to ASCII
- ☐ Changed the margins in cases where the sequence text was "wrapped" down to the next line.
- ☐ Edited a format error in the Current Application Data section, specifically: **ENTERED**
- ☐ Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other _____
- ☐ Added the mandatory heading and subheadings for "Current Application Data".
- ☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.
- ☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically: _____
- ☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were: _____
- ☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited: _____
- ☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.
- ☐ Inserted colons after headings/subheadings. Headings edited included: _____
- ☐ Deleted extra, invalid, headings used by an applicant, specifically: _____
- ☒ Deleted: ☒ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as _____
- ☐ Inserted mandatory headings, specifically: _____
- ☐ Corrected an obvious error in the response, specifically: _____
- ☐ Edited identifiers where upper case is used but lower case is required, or vice versa.
- ☐ Corrected an error in the Number of Sequences field, specifically: _____
- ☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.
- ☐ Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____
- ☐ Other: _____

*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95



OIEP

RAW SEQUENCE LISTING

DATE: 03/29/2002

PATENT APPLICATION: US/09/847,081B

TIME: 10:28:49

Input Set : A:\pto_ms.txt

Output Set: N:\CRF3\03292002\I847081B.raw

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3 <110> APPLICANT: BAYER AG
5 <120> TITLE OF INVENTION: DNA encoding the tobacco phytoene synthase
7 <130> FILE REFERENCE: Le A 34 326
C--> 9 <140> CURRENT APPLICATION NUMBER: US/09/847,081B
10 <141> CURRENT FILING DATE: 2001-05-02
12 <160> NUMBER OF SEQ ID NOS: 10
14 <170> SOFTWARE: PatentIn Ver. 2.1
16 <210> SEQ ID NO: 1
17 <211> LENGTH: 1728
18 <212> TYPE: DNA
19 <213> ORGANISM: Nicotiana tabacum
21 <220> FEATURE:
22 <221> NAME/KEY: CDS
23 <222> LOCATION: (244)..(1566)
25 <400> SEQUENCE: 1
26 agaaacccag aaagaacaac aggttttgc tcttggtgat gagtgcattt gcctctgctt 60
28 gtgtaaggca aagtcgggttc actttcttat atccgatttt tataatcggt gaaattagt 120
30 gatagactct agtggatata tacaagtatt ggttttttga taaaataggc tgaggtgaga 180
32 aggtaacata aaggaaagac aaaaacttgg gaattgtttt agaccaccga ggtttcttgt 240
34 ttc atg agc atg tct gtt gct ttg ttg tgg gtt gtt tct ccc act tcc 288
35 Met Ser Met Ser Val Ala Leu Leu Trp Val Val Ser Pro Thr Ser
36 1 5 10 15
38 gag gtc tcg aat ggg aca gga ttg ttg gat tca gtc cga gaa gga aac 336
39 Glu Val Ser Asn Gly Thr Gly Leu Leu Asp Ser Val Arg Glu Gly Asn
40 20 25 30
42 cgc gtc ttt gta tca tcc agg ttc cta gct cga gat agg aat ttg atg 384
43 Arg Val Phe Val Ser Ser Arg Phe Leu Ala Arg Asp Arg Asn Leu Met
44 35 40 45
46 tgg aat ggg aga atc aag aaa ggt ggg aga caa agg tgg aat ttt ggc 432
47 Trp Asn Gly Arg Ile Lys Lys Gly Gly Arg Gln Arg Trp Asn Phe Gly
48 50 55 60
50 tct tta att gct gat cca aga tat tca tgc ttg ggt gga tca aga act 480
51 Ser Leu Ile Ala Asp Pro Arg Tyr Ser Cys Leu Gly Gly Ser Arg Thr
52 65 70 75
54 gaa aag gga agc act ttc tct gta cag tcc agt ttg gtg gct agc cca 528
55 Glu Lys Gly Ser Thr Phe Ser Val Gln Ser Ser Leu Val Ala Ser Pro
56 80 85 90 95
58 gct gga gaa atg act gtg tca tca gag aaa aag gtg tat gat gtg gta 576
59 Ala Gly Glu Met Thr Val Ser Ser Glu Lys Lys Val Tyr Asp Val Val
60 100 105 110
62 tta aag cag gca gct tta gtg aag agg cag ctg aga tct acc gat gat 624
63 Leu Lys Gln Ala Ala Leu Val Lys Arg Gln Leu Arg Ser Thr Asp Asp
64 115 120 125

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Input Set : A:\pto_ms.txt

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66 tta gaa gtg aag ccg gat att gtt gtt cca ggg aat ttg ggc ttg ttg 672
67 Leu Glu Val Lys Pro Asp Ile Val Val Pro Gly Asn Leu Gly Leu Leu
68      130      135      140
70 agt gaa gca tat gat cgt tgt ggc gaa gta tgt gca gag tat gca aag 720
71 Ser Glu Ala Tyr Asp Arg Cys Gly Glu Val Cys Ala Glu Tyr Ala Lys
72      145      150      155
74 aca ttt tac tta gga acc aag cta atg acc cca gag aga aga aga gct 768
75 Thr Phe Tyr Leu Gly Thr Lys Leu Met Thr Pro Glu Arg Arg Arg Ala
76 160      165      170      175
78 atc tgg gca ata tat gtg tgg tgc agg aga acg gat gag ctt gtt gat 816
79 Ile Trp Ala Ile Tyr Val Trp Cys Arg Arg Thr Asp Glu Leu Val Asp
80      180      185      190
82 ggc cct aat gca tcc cac ata act ccg caa gct tta gat agg tgg gag 864
83 Gly Pro Asn Ala Ser His Ile Thr Pro Gln Ala Leu Asp Arg Trp Glu
84      195      200      205
86 acc agg ctg gaa gat att ttc agt ggg cgg cca ttt gat atg ctt gat 912
87 Thr Arg Leu Glu Asp Ile Phe Ser Gly Arg Pro Phe Asp Met Leu Asp
88      210      215      220
90 gct gct tta tcc gat act gtc tcc aga ttt cct gtt gat att cag cca 960
91 Ala Ala Leu Ser Asp Thr Val Ser Arg Phe Pro Val Asp Ile Gln Pro
92      225      230      235
94 ttc aga gat atg att gaa gga atg cgt atg gac ttg tgg aaa tcc aga 1008
95 Phe Arg Asp Met Ile Glu Gly Met Arg Met Asp Leu Trp Lys Ser Arg
96 240      245      250      255
98 tac aaa act ttc gat gag cta tat ctc tat tgt tac tat gtt gct ggt 1056
99 Tyr Lys Thr Phe Asp Glu Leu Tyr Leu Tyr Cys Tyr Tyr Val Ala Gly
100      260      265      270
102 act gta gga ttg atg agt gtt cca gtt atg ggt att gca cct gaa tca 1104
103 Thr Val Gly Leu Met Ser Val Pro Val Met Gly Ile Ala Pro Glu Ser
104      275      280      285
106 aag gca aca aca gag agt gta tat aat gct gct ttg gct tta ggg ctt 1152
107 Lys Ala Thr Thr Glu Ser Val Tyr Asn Ala Ala Leu Ala Leu Gly Leu
108      290      295      300
110 gca aat caa cta acc aat ata ctc aga gat gta gga gaa gat gcc aga 1200
111 Ala Asn Gln Leu Thr Asn Ile Leu Arg Asp Val Gly Glu Asp Ala Arg
112      305      310      315
114 aga gga aga gta tac ttg cct caa gat gaa tta gca cag gca ggg ctc 1248
115 Arg Gly Arg Val Tyr Leu Pro Gln Asp Glu Leu Ala Gln Ala Gly Leu
116 320      325      330      335
118 tcc gac gaa gac ata ttt gct gga aga gtg act gat aag tgg agg aac 1296
119 Ser Asp Glu Asp Ile Phe Ala Gly Arg Val Thr Asp Lys Trp Arg Asn
120      340      345      350
122 ttt atg aag aaa caa att cag agg gcg agg aaa ttc ttt gat gag tca 1344
123 Phe Met Lys Lys Gln Ile Gln Arg Ala Arg Lys Phe Phe Asp Glu Ser
124      355      360      365
126 gag aaa ggt gtc aca gaa ctg gac tct gct agt aga tgg cct gtg tta 1392
127 Glu Lys Gly Val Thr Glu Leu Asp Ser Ala Ser Arg Trp Pro Val Leu
128      370      375      380
130 aca gcg ctg ctg ttg tat cgc aag ata ttg gac gag att gaa gcc aac 1440

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131 Thr Ala Leu Leu Leu Tyr Arg Lys Ile Leu Asp Glu Ile Glu Ala Asn
132      385                      390                      395
134 gac tac aac aac ttc aca agg agg gct tat gtt agc aag cca aag aag 1488
135 Asp Tyr Asn Asn Phe Thr Arg Arg Ala Tyr Val Ser Lys Pro Lys Lys
136 400                      405                      410                      415
138 ctt ctc acc ttg ccc att gct tat gca aaa tct ctt gtg ccc cct aat 1536
139 Leu Leu Thr Leu Pro Ile Ala Tyr Ala Lys Ser Leu Val Pro Pro Asn
140                      420                      425                      430
142 aga act tcc tct cca cta gca aag aca tga atgaagtagt tgagtcaatg 1586
143 Arg Thr Ser Ser Pro Leu Ala Lys Thr
144      435                      440
146 agtattatac actaaagaaa ctcaaggtagt tgtaaagtag atattcttttg ctaaatgtgt 1646
148 atcatcaaaaa gtagattgta aattcaatat gacaatctct tggtagaata ttttctccac 1706
150 actcatcaaaa ccctcaagtg ag 1728
153 <210> SEQ ID NO: 2
154 <211> LENGTH: 440
155 <212> TYPE: PRT
156 <213> ORGANISM: Nicotiana tabacum
158 <400> SEQUENCE: 2
159 Met Ser Met Ser Val Ala Leu Leu Trp Val Val Ser Pro Thr Ser Glu
160 1 5 10 15
162 Val Ser Asn Gly Thr Gly Leu Leu Asp Ser Val Arg Glu Gly Asn Arg
163 20 25 30
165 Val Phe Val Ser Ser Arg Phe Leu Ala Arg Asp Arg Asn Leu Met Trp
166 35 40 45
168 Asn Gly Arg Ile Lys Lys Gly Gly Arg Gln Arg Trp Asn Phe Gly Ser
169 50 55 60
171 Leu Ile Ala Asp Pro Arg Tyr Ser Cys Leu Gly Gly Ser Arg Thr Glu
172 65 70 75 80
174 Lys Gly Ser Thr Phe Ser Val Gln Ser Ser Leu Val Ala Ser Pro Ala
175 85 90 95
177 Gly Glu Met Thr Val Ser Ser Glu Lys Lys Val Tyr Asp Val Val Leu
178 100 105 110
180 Lys Gln Ala Ala Leu Val Lys Arg Gln Leu Arg Ser Thr Asp Asp Leu
181 115 120 125
183 Glu Val Lys Pro Asp Ile Val Val Pro Gly Asn Leu Gly Leu Leu Ser
184 130 135 140
186 Glu Ala Tyr Asp Arg Cys Gly Glu Val Cys Ala Glu Tyr Ala Lys Thr
187 145 150 155 160
189 Phe Tyr Leu Gly Thr Lys Leu Met Thr Pro Glu Arg Arg Arg Ala Ile
190 165 170 175
192 Trp Ala Ile Tyr Val Trp Cys Arg Arg Thr Asp Glu Leu Val Asp Gly
193 180 185 190
195 Pro Asn Ala Ser His Ile Thr Pro Gln Ala Leu Asp Arg Trp Glu Thr
196 195 200 205
198 Arg Leu Glu Asp Ile Phe Ser Gly Arg Pro Phe Asp Met Leu Asp Ala
199 210 215 220
201 Ala Leu Ser Asp Thr Val Ser Arg Phe Pro Val Asp Ile Gln Pro Phe
202 225 230 235 240

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TIME: 10:28:49

Input Set : A:\pto_ms.txt

Output Set: N:\CRF3\03292002\I847081B.raw

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204 Arg Asp Met Ile Glu Gly Met Arg Met Asp Leu Trp Lys Ser Arg Tyr
205                               245                               250                               255
207 Lys Thr Phe Asp Glu Leu Tyr Leu Tyr Cys Tyr Tyr Val Ala Gly Thr
208                               260                               265                               270
210 Val Gly Leu Met Ser Val Pro Val Met Gly Ile Ala Pro Glu Ser Lys
211                               275                               280                               285
213 Ala Thr Thr Glu Ser Val Tyr Asn Ala Ala Leu Ala Leu Gly Leu Ala
214                               290                               295                               300
216 Asn Gln Leu Thr Asn Ile Leu Arg Asp Val Gly Glu Asp Ala Arg Arg
217 305                               310                               315                               320
219 Gly Arg Val Tyr Leu Pro Gln Asp Glu Leu Ala Gln Ala Gly Leu Ser
220                               325                               330                               335
222 Asp Glu Asp Ile Phe Ala Gly Arg Val Thr Asp Lys Trp Arg Asn Phe
223                               340                               345                               350
225 Met Lys Lys Gln Ile Gln Arg Ala Arg Lys Phe Phe Asp Glu Ser Glu
226                               355                               360                               365
228 Lys Gly Val Thr Glu Leu Asp Ser Ala Ser Arg Trp Pro Val Leu Thr
229                               370                               375                               380
231 Ala Leu Leu Leu Tyr Arg Lys Ile Leu Asp Glu Ile Glu Ala Asn Asp
232 385                               390                               395                               400
234 Tyr Asn Asn Phe Thr Arg Arg Ala Tyr Val Ser Lys Pro Lys Lys Leu
235                               405                               410                               415
237 Leu Thr Leu Pro Ile Ala Tyr Ala Lys Ser Leu Val Pro Pro Asn Arg
238                               420                               425                               430
240 Thr Ser Ser Pro Leu Ala Lys Thr
241                               435                               440

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245 <210> SEQ ID NO: 3

246 <211> LENGTH: 1712

247 <212> TYPE: DNA

248 <213> ORGANISM: Nicotiana tabacum

250 <220> FEATURE:

251 <221> NAME/KEY: CDS

252 <222> LOCATION: (333)..(1565)

W--> 253 <220> FEATURE:

254 <221> NAME/KEY: unsure

255 <222> LOCATION: 135, 139

256 <223> OTHER INFORMATION: Xaa is unknown or other

W--> 257 <220> FEATURE:

258 <221> NAME/KEY: unsure

259 <222> LOCATION: 51

260 <223> OTHER INFORMATION: n can be any nucleotide

262 <400> SEQUENCE: 3

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W--> 263 cttgaagagt agcagcagca agcaagahaa ttaaagtggg ctatttbkka naagccattg 60
265 ttacmagara attaagaagc caagamacag gttattttct acttgagtya ggaaaagt 120
267 gtttgcttta tttgtgggct ttttataatc tttttccac aagggaagt gggatttttc 180
269 ttgaaagtgg atttagactc tagtggaat ctactaggag taaatttatt aattttttat 240
271 aaattaagca gaggaaggaa ggaaacagaa aacagaaagt aagacaaaaa accttggaat 300
273 tgttttagaa agccaagggtt ttcctgttca aa atg tct gtt gcc ttg tta tgg 353
274                               Met Ser Val Ala Leu Leu Trp

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275										1				5					
277	gtt	gtt	tca	cct	tgt	gaa	gtc	tca	aat	ggg	aca	gga	ttc	ttg	gat	tca			401
278	Val	Val	Ser	Pro	Cys	Glu	Val	Ser	Asn	Gly	Thr	Gly	Phe	Leu	Asp	Ser			
279			10						15				20						
281	gtc	cgg	gag	gga	aac	cgg	gtt	ttt	gat	tcg	tcg	agg	cat	agg	aat	tta			449
282	Val	Arg	Glu	Gly	Asn	Arg	Val	Phe	Asp	Ser	Ser	Arg	His	Arg	Asn	Leu			
283		25					30					35							
285	gtg	tgc	aat	gag	aga	aac	aag	aga	ggt	gtg	aaa	caa	agg	tgg	aat	ttt			497
286	Val	Cys	Asn	Glu	Arg	Asn	Lys	Arg	Gly	Val	Lys	Gln	Arg	Trp	Asn	Phe			
287	40					45				50						55			
289	ggt	tct	gta	agg	tct	gct	atg	gtg	gct	aca	ccg	gcg	gga	gaa	atg	gcg			545
290	Gly	Ser	Val	Arg	Ser	Ala	Met	Val	Ala	Thr	Pro	Ala	Gly	Glu	Met	Ala			
291				60					65				70						
293	acg	atg	aca	tca	gaa	cag	atg	gtt	tat	gat	gtg	gtt	tta	aaa	caa	gca			593
294	Thr	Met	Thr	Ser	Glu	Gln	Met	Val	Tyr	Asp	Val	Val	Leu	Lys	Gln	Ala			
295				75				80					85						
297	gct	tta	gtg	aag	agg	cag	ttg	aga	tct	gct	gat	gat	tta	gaa	gtg	aag			641
298	Ala	Leu	Val	Lys	Arg	Gln	Leu	Arg	Ser	Ala	Asp	Asp	Leu	Glu	Val	Lys			
299			90					95					100						
301	ccg	gag	atc	cct	ctc	ccc	ggg	aat	ttg	agc	ttg	ttg	agt	gaa	gca	tat			689
302	Pro	Glu	Ile	Pro	Leu	Pro	Gly	Asn	Leu	Ser	Leu	Leu	Ser	Glu	Ala	Tyr			
303		105					110					115							
305	gat	agg	tgt	agt	gaa	gta	tgt	gca	gag	tat	gca	aag	aca	ttt	tac	tth			737
W--> 306	Asp	Arg	Cys	Ser	Glu	Val	Cys	Ala	Glu	Tyr	Ala	Lys	Thr	Phe	Tyr	Xaa			
307	120					125					130					135			
309	gga	acc	atg	yta	atg	act	cca	gag	aga	aga	agg	gct	att	tgg	gca	ata			785
W--> 310	Gly	Thr	Met	Xaa	Met	Thr	Pro	Glu	Arg	Arg	Arg	Ala	Ile	Trp	Ala	Ile			
311				140					145				150						
313	tat	gtg	tgg	tgc	agg	aga	aca	gat	gaa	ctt	gtt	gat	ggc	cca	aac	gca			833
314	Tyr	Val	Trp	Cys	Arg	Arg	Thr	Asp	Glu	Leu	Val	Asp	Gly	Pro	Asn	Ala			
315				155					160				165						
317	tca	cat	att	aca	ccc	caa	gcc	tta	gat	agg	tgg	gaa	gac	cgg	ctt	gaa			881
318	Ser	His	Ile	Thr	Pro	Gln	Ala	Leu	Asp	Arg	Trp	Glu	Asp	Arg	Leu	Glu			
319			170					175					180						
321	gat	gtt	ttc	agc	ggg	cga	cca	ttt	gat	atg	ctc	gat	gct	gct	ttg	tcc			929
322	Asp	Val	Phe	Ser	Gly	Arg	Pro	Phe	Asp	Met	Leu	Asp	Ala	Ala	Leu	Ser			
323		185					190					195							
325	gat	act	gtt	tcc	aag	ttt	cca	gtt	gat	att	cag	ccg	ttc	aga	gat	atg			977
326	Asp	Thr	Val	Ser	Lys	Phe	Pro	Val	Asp	Ile	Gln	Pro	Phe	Arg	Asp	Met			
327	200					205					210					215			
329	att	gaa	gga	atg	cgt	atg	gac	ttg	agg	aag	tca	aga	tat	aga	aac	ttt			1025
330	Ile	Glu	Gly	Met	Arg	Met	Asp	Leu	Arg	Lys	Ser	Arg	Tyr	Arg	Asn	Phe			
331				220						225				230					
333	gat	gag	ctt	tac	ctc	tat	tgt	tat	tac	gtt	gct	ggt	acg	gtt	ggg	ttg			1073
334	Asp	Glu	Leu	Tyr	Leu	Tyr	Cys	Tyr	Tyr	Val	Ala	Gly	Thr	Val	Gly	Leu			
335			235						240				245						
337	atg	agt	gtt	cca	att	atg	ggt	att	gca	cct	gat	tca	aag	gca	aca	aca			1121
338	Met	Ser	Val	Pro	Ile	Met	Gly	Ile	Ala	Pro	Asp	Ser	Lys	Ala	Thr	Thr			
339			250					255					260						



Use of n and / or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 03/29/2002
PATENT APPLICATION: US/09/847,081B TIME: 10:28:50

Input Set : A:\pto_ms.txt
Output Set: N:\CRF3\03292002\I847081B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 51
Seq#:3; Xaa Pos. 135,139
Seq#:4; Xaa Pos. 135,139

VERIFICATION SUMMARY

DATE: 03/29/2002

PATENT APPLICATION: US/09/847,081B

TIME: 10:28:50

Input Set : A:\pto_ms.txt

Output Set: N:\CRF3\03292002\I847081B.raw

L:9 M:270 C: Current Application Number differs, Wrong Format
L:253 M:283 W: Missing Blank Line separator, <220> field identifier
L:257 M:283 W: Missing Blank Line separator, <220> field identifier
L:263 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
L:306 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:737
L:310 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:785
L:390 M:283 W: Missing Blank Line separator, <220> field identifier
L:420 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:128